2005 IAP

Holston Army Ammunition Plant

Installation Action Plan

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Kingsport, Tennessee

Document Printed 8 November 2004

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total, multi-year, restoration program for an installation. The plan will define Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs and schedule to conduct future investigations and remedial actions at each Solid Waste Management Unit (SWMU) at the installation and other areas of concern.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels, and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at the Holston Army Ammunition Plant (HSAAP) by the end of 2007.

The following agencies contributed to the formulation and completion of this 2005 Installation Action Plan for Holston Army Ammunition Plant during a planning workshop held on 29 September 2004:

BAE Systems

Bay West

Engineering & Environment, Inc (EEI) for the U.S. Army Environmental Center (USAEC)

ES&H

Holston AAP ER,A Program Manager

SAIC

Tennessee Department of Environment and Conservation (TDEC)

U.S. Army Center for Health Promotion and Preventive Medicine

U.S. Army Corps of Engineers (USACE), Mobile District

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CERCLA and RCRA Acronym Conversions

CERCLA		**RCRA**
Preliminary Assessment (PA)	=	RCRA Facility Assessment (RFA)
Site Inspection (SI)	=	Confirmation Sampling (CS)
Remedial Investigation/ Feasibility Study (RI/FS)	=	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)
Remedial Design (RD)	=	Corrective Measures Implementation (Work Plan) (CMI(WP))
Interim Remedial Action (IRA)	=	Interim Measure (IM)
Remedial Action (Construction) (RA(C))	=	Corrective Measures Implementation (Construction) (CMI(C))
Remedial Action (Operation) (RA(O))	=	Corrective Measures Implementation (Operation) (CMI(O))
Long Term Monitoring (LTM)	=	Long Term Monitoring (LTM)

Acronyms & Abbreviations

AAP	Army Ammunition Plant
ACS	Alternate Confirmatory Sampling
ACSIM	Assistant Chief of Staff for Installation Management
AEDBR	Army Environmental Database Restoration
AMC	Army Materiel Command
AOC	Area Of Concern
AST	Aboveground Storage Tank
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
C/D	Construction Debris
CAP	Corrective Action Plan
CE	Corps of Engineers
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CMI (C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operation)
CMI(WP)	Corrective Measures Implementation (Workplan)
CMS	Corrective Measures Study
CS	Confirmatory Sampling
cy	cubic yards
DERA	Defense Environmental Restoration Account (currently called ER,A)
DERP	Defense Environmental Restoration Program
DES	Design
DSERTS	Defense Site Environmental Restoration Tracking System
EHS	Environmental Health and Safety
EMS	Emergency Medical Service
EPA	United States Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ER,A	Environmental Restoration, Army (formerly DERA)
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
GW	Groundwater
HDC	Holston Defense Corporation
HMX	Cyclotetramethylenetetranitramine
HOW	Holston Ordnance Works
HRS2	Hazardous Ranking System Score
HSAAP	Holston Army Ammunition Plant
IAP	Installation Action Plan
ICM	Interim Corrective Measure
IM	Interim Measures
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWTF	Industrial Wastewater Treatment Facility
LTM	Long Term Monitoring
MAC	U.S. Army Materials & Armaments Command
MACOM	Major Command
MCL	Maximum Contaminant Level
MSC	Major Subordinate Command
MW	Monitoring Well
NFA	No Further Action
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OSC	Operations Support Command
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
POL	Petroleum, Oil & Lubricants
PRG	Preliminary Remediation Goals
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RBC	Risk Base Concentrations
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Cyclotrimethylenetrinitramine
REM	Removal
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in place
RPM	Remedial Project Manager
RRSE	Relative Risk Site Evaluation
S&A	Supervision and Administration
SAA	Satellite Accumulation Area
SBTU	Solvent Burn Tank Unit
SI	Site Inspection
STMW	Solvent Tank Monitoring Well
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TDEC	Tennessee Department of Environment and Conservation
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (formerly USAEHA)
USAEC	US Army Environmental Center (formerly USATHAMA)
USAEHA	United States Army Environmental Hygiene Agency (currently called USACHPPM)
USATHAMA	United States Army Toxic and Hazardous Materiels Agency (currently called USAEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOCs	Volatile Organic Compounds
VSI	Visual Site Inspection
WWTP	Waste Water Treatment Plant

Summary

STATUS: Holston AAP is not on the NPL and has no CERCLA sites.

TOTAL # OF AEDB-R SITES: 28 AEDB-R sites
ACTIVE ER,A SITES: 12 Active ER,A Sites
RESPONSE COMPLETE (RC) SITES: 16 Response Complete Sites
MMRP SITES: 2

DIFFERENT SITE TYPES:

Burn Area - 1
Waste Treatment Plant - 1
Firing Range - 1
Storage Areas - 2
Spill Site Area - 1
Industrial Discharge - 1
Contaminated Building - 1
Explosives Ordnance Disposal Area - 1
Pesticide Shop - 1
Surface Disposal Area - 1
Landfills - 7
Surface Impoundment - 6
Contaminated Sediments - 1
Underground Storage Tanks - 3

CONTAMINANTS OF CONCERN: Coal Tar, Explosives, Metals, VOCs, SVOCs, Pesticides, Herbicides

MEDIA OF CONCERN: Groundwater, Soil, Sediment, Surface Water

COMPLETED REM/IRA/RA:

- HSAAP-29 - IM sparge/vapor extraction - 1995
- HSAAP-33 - Post-closure care plan for Former Solvent Burn tank site - 1998
- HSAAP-37 - IM of coal tar around Gas Producer Plant/Liquor Tanks - 1996

(For a full list of past REM/IRA/RAs, see the REM/IRA/RAs Section)

RA FIVE YEAR REVIEW: B105 Decision Document Five Year Review Planned for March 8, 2005

CURRENT IRP PHASES: RFI - 10 Sites LTM - 2 Sites
(Total Number of AEDB-R sites are different from Phase Totals as one site can be in more than one phase)

PROJECTED IRP PHASES: RFI - 6 Sites CMI - 2 Sites IM - 3 Sites LTM - 2 Sites
(Total Number of AEDB-R sites are different from Phase Totals as one site can be in more than one phase)

IDENTIFIED POSSIBLE REM/IRA/RA:

- IM - HSAAP-26, 27, 38
- CMI - HSAAP-30, 33

DURATION: Year of IRP Inception: **1991**
Year of IRP Completion excluding LTM: **2007**

Installation Information

SITE DESCRIPTION:

Holston Army Ammunition Plant (HSAAP) is located in the city of Kingsport in Sullivan and Hawkins Counties, Tennessee and is approximately 6,000 acres.

COMMAND ORGANIZATION:

Joint Munitions Command (JMC)
Southeastern Regional Office (SERO)
Assistant Chief of Staff for Installation Management (ACSIM)
INSTALLATION: Holston Army Ammunition Plant

IRP EXECUTING AGENCIES:

- U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)
- U.S. Army Corps of Engineers, Mobile District
- BAE SYSTEMS OSI, Inc.

REGULATORY PARTICIPATION:

STATE: Tennessee Department of Environment and Conservation (TDEC)

REGULATORY STATUS:

- HSAAP no longer has any sites on the "state superfund list." These sites were removed and are regulated by TDEC's Corrective Action Program, September 1999.

MAJOR CHANGES TO THE IAP IN 2004:

- Performance-Based contract awarded at Holston AAP in the fourth quarter of FY04 for remediation at sites HSAAP-08, 13, 26, 27, 29, 30, 33, SWMU 103 at HSAAP-37, SWMUs 70 and AOC F and I at HSAAP-38.
- Army guidance is directing that all IAP workshops be held on the Army installations if facilities are available to accomodate the meeting. The next IAP workshop for Holston is currently scheduled for 3-4 May 2005.

Installation Information

DESCRIPTION:

Holston Army Ammunition Plant (HSAAP) is an active ammunition plant that is government-owned and contractor operated. At present, BAE SYSTEMS Ordnance Systems Inc. is the operating contractor.

The HSAAP consists of two plant areas referred to as Area A and Area B. Area A is located within the city of Kingsport in Sullivan County, Tennessee on State Route 93. Area B is located in Hawkins County, about 4 miles west of downtown Kingsport, Tennessee on U.S. Route 11W. Area A and Area B are linked by a fenced interplant railroad that is approximately 3.7 miles long. Industrial wastewater, weak acetic acid, and acetic anhydride are conveyed between the two areas by above and belowground piping that is located along the interplant railroad. Government-acquired easements for this corridor total approximately 86 acres. Area A, which is the smaller of the two areas, is approximately 112 acres, and includes the Producer Gas Plant. Area B is approximately 5,913 acres. The south fork of the Holston River flows along the southern boundary of much of the facility.

HISTORY & MISSION:

Initially, HSAAP was referred to as the Holston Ordnance Works (HOW). Production began on April 29, 1943, with the first Composition B coming off the line on May 8.

The mission of the installation is to produce RDX and HMX based explosives. “RDX” means Research Department Explosive, also referred to as “cyclonite;” chemical name: cyclotrimethylenetrinitramine. “HMX” means High Melting Explosive, also referred to as “homocyclonite;” chemical name: cyclotetramethylene tetranitramine. HSAAP is the only installation in the U.S. that presently produces these types of explosives. The explosives are boxed or drummed and shipped to other plants for loading into munitions. There are 130 magazines (referred to as X-magazines) that are used for temporary storage. There are eleven Y-magazines; but no explosive storage

History & Mission continued next page

HISTORY & MISSION: continued

is allowed in them at the present time, due to their wood structure. Currently, HSAAP does not have a storage mission.

HSAAP was inactive from 1946 to 1949. Other than these years, HSAAP has been an active installation. The Holston Defense Corporation (HDC) operated the installation from its inception until Dec 1998.

Tenants on the installation include the Red Cross, Sullivan County EMS, Transit-Mix Concrete, Inc., Tri-Cities Weatherproofing, and TENGASCO. The Kingsport Rail Car Service currently has a railcar maintenance facility, is constructing a blasting/painting facility, and stores railcars at the installation. Environmental Health and Safety Training (EHS) training services, Army Reserve and National Guard training activities are still held at HSAAP. Joint efforts by the Army, City of Kingsport and Hawkins County resulted in the construction of a small business incubator (a small business support services center).

Contamination Assessment

OVERVIEW

Holston Army Ammunition Plant (HSAAP) has a total of 28 AEDB-R sites of environmental concern. The sites include areas of contamination from removed USTs, coal tar, sanitary and construction debris landfills, earthen ponds, a pesticide shop, burn areas, weapons and firing ranges, fire training sites, vehicle maintenance areas, former spill areas, and miscellaneous storage areas.

Polynuclear aromatic hydrocarbons (contained in coal tar), explosives, pesticides, and benzene, toluene, ethyl benzene and xylenes (BTEX) are the primary contaminants of concern at HSAAP. HSAAP has 103 Solid Waste Management Units (SWMUs) and 12 Areas of Concern (AOCs) identified in the RCRA Facility Assessment (RFA). USATHAMA conducted a Preliminary Site Inspection (May 1992), which confirmed the RFA findings.

Holston has removed all regulated USTs. Three sites were found to be contaminated with POL (HSAAP-28, 29, and 34). A site-specific standard was requested for HSAAP-28 (Building 22), a solvent-vapor extraction system was operated at HSAAP-29 (Building 105) until August 2000, and no further action is required at HSAAP-34 since heating oil contamination was adequately removed during excavation.

Investigations and Interim/Removal Actions addressing coal tar have also been completed at several HSAAP sites (primarily at HSAAP-03 and 37).

Table 1 (on the following page) provides a listing of all related studies which have been performed. To better manage the numerous sites, the Installation Action Plan shows sites grouped due to proximity and/or site type, and are described in more detail following Table 1 in the Site Descriptions Section.

An extensive suite of chemical analysis has been performed on a site-wide GW monitoring network. This monitoring shows no indication of off-post GW contamination.

Contamination Assessment

PREVIOUS STUDIES

2004

- IM Report Site-Wide Groundwater Area B (Explosives Production Area), USACHPPM, January 2004
- Additional IM Work Plan Site-Wide Groundwater Area B (Explosives Production Area), USACHPPM, 29 March through 16 April 2004
- RFI Work Plan SWMU HSAAP-020 Rock Quarry landfill, USACHPPM, May 2004
- RFI Report Site-Wide Ground Water 2-13 February 2004, USACHPPM, May 2004
- RFI Work Plan SWMU HSAAP-088 WWII Pesticide Rinsate Washdown Area, USACHPPM, July 2004
- RFI Work Plan SWMU HSAAP-052 (Vehicle Wash Pad inside Building 105) and AOC-C (Leaking UST B-105, Service Station, USACHPPM, August 2004

2003

- IM Report SWMU HSAAP-096 Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, January 2003
- Additional IM Report for Site-wide GW, USACHPPM, 8/03
- Additional IM Report Solid Waste management Unit6 HSAAP-96 Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, August 2003

2002

- Second Semi-Annual Report, USACHPPM, 10/8/2002
- Interim Measures Work Plan SWMU-096, USACHPPM, 10/1/2002
- Draft RCRA Facility Investigation Report for SWMU 043, Burning Ground, USACHPPM, 9/1/2002
- RCRA Facility Investigation Report for SWMU 096, Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, 8/1/2002
- RCRA Facility Investigation Report for Site-Wide Groundwater, April-June 2001 and January 2002, USACHPPM, 5/1/2002
- Additional Confirmatory Sampling Report for HSAAP, USACHPPM, 3/1/2002
- Final ACS Report, 3/1/2002
- Final RCRA Facility Investigation Report for SWMUs 004, 014, 103, USACHPPM, 2/1/2002
- RCRA Facility Investigation Report for SWMU 026, USACHPPM, 2/1/2002

2001

- Draft RFI Report for SWMUs 004, 014, 103, USACHPPM, 6/1/2001
- Additional Confirmatory Sampling Report for HSAAP, USACHPPM, 4/1/2001

2000

- RFI Work Plan, USACHPPM, 6/1/2000
- CS Report, USACHPPM, 6/1/2000

1999

- CS Work Plan, USACHPPM, 6/1/1999
- RCRA Facility Assessment Addendum, prepared by TDEC, 1/1/1999

Previous Studies Table continued next page

PREVIOUS STUDIES, continued

1998

- Site Status Monitoring Report, Building 105 Service Station, HSAAP, Facility I.D. No. 0-370050, prepared by LAW, 2/13/1998

1997

- Holston Closure Report, Former Solvent Burn Tank Unit, prepared by Brown & Root Env., 12/1/1997
- Groundwater Consultation No. 38-EH-5601-97, Relative Risk Site Evaluation, USACHPPM, 9/10/1997
- RFA Release Assessment, USACHPPM, 6/1/1997
- Holston AAP, Groundwater Assessment Report and Annual Groundwater Monitoring Report, prepared by Brown and Root Environmental, 2/1/1997

1996

- Savannah District, Pre-final RCRA Facility Investigation Report, HSAAP SWMUs 14 & 15, U.S. Army Corps of Engineers, 11/1/1996
- Survey Phase RCRA Facility Assessment No. 38-EH-5035-96, HSAAP, USACHPPM, 7/16/1996

1995

- Corrective Measures Study Report, Holston Army Ammunition Plant, Geraghty & Miller, Inc., 8/1/1995

1994

- Groundwater Assessment Nitrate ponds 3 and 4, Holston Army Ammunition Plant, Geraghty & Miller, Inc., 12/1/1994
- Savannah District Pre-Final Environmental Assessment Report, Building 22 Area - Flashing Facility, RUST Environment & Infrastructure, U.S. Army Corps of Engineers, 10/1/1994

1993

- Phase 2, Wastewater Management Study No. 32-24-H13Q-94, Industrial Wastewater Collection System Evaluation, Holston Army Ammunition Plant, USAEHA, 11/18/93
- Geohydrologic Study No. 38-26-KT17-93, Former Solvent Burn Tank, Holston Army Ammunition Plant, USAEHA, 6/18/1993
- Holston AAP, Bldg. 105, Service Station, Corrective Action Plan and Environmental Assessment Report, prepared by USATHAMA under direction of Holston AAP, 1/1/1993

1992

- Hazardous Ranking System Score (HRS2) Summary Report for Holston AAP, USATHAMA, prepared by Advanced Sciences, Inc., 7/1/1992
- Preliminary Site Inspection for Holston AAP, Site Inspection Report No. 91042, USATHAMA, prepared by Advanced Sciences, Inc., 5/1/1992
- Holston AAP, Bldg. 22, Flashing Facility, Corrective Action Planprepared by USATHAMA under direction of Holston AAP, 4/20/1992

1991

- Draft RCRA Facility Assessment of Holston AAP, prepared for EPA Region IV, A. T. Kearney, Inc., 8/30/1991

Previous Studies Table continued next page

Contamination Assessment

PREVIOUS STUDIES, continued

1989

- Holston AAP Investigation and Evaluation of Underground Storage Tanks, DA Corps of Engineers, Omaha District, 9/1/1989

1988

- Final Summary of Groundwater Consultation 38-26-0809-87, conducted 6-10 October 1986 and 21-25 April 1987, •
- POL Contamination in Groundwater near Industrial Landfill, AEHA, 4/25/1988

1987

- Water Quality Engineering Study No. 32-24-0791-88, Evaluation of Alternative Industrial Wastewater Treatment Plant Sludge Disposal Methods, Holston AAP 1987, AEHA, 11/5/1987
- Hazardous Waste Study No. 37-26-0779-87, Investigation of Soil Contamination at the Open Burning Area, Holston AAP, 7-18 April 1986, AEHA, 2/6/1987

1986

- Update of Initial Installation Assessment of Holston Army Ammunition Plant, October 1986 (publish date), Report AMXTH-IR-A-148 (U), USATHAMA, 5/14/1986
- Phase 5, Hazardous Waste Study No. 37-26-0593-86, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, March 1981 - March 1985, AEHA, 2/1/1986

1985

- Phase 3, Hazardous Waste Study No. 37-26-0147-84, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, AEHA, 6/18/1985
- Miscellaneous Reports Concerning Closing the Tar Disposal Site at Area A [HSAAP-22], the Rock Quarry Landfill [HSAAP-01], and Rock Dam Landfill, Dated 1982-1983, Holston AAP, 6/1/1985
- Industrial Hygiene Study No. 55-35-0100-85, Evaluation of Health Hazards at the Gas Producer [Applicable to the hazards of the buried tar], AEHA, 6/1/1985

1984

- 90 Percent Report, Pitch Trap Waste (Coal Tar) Solidification Evaluation, Environmental and Safety Designs, Inc., 8/20/1984
- 90 Percent Report, Floodplain Feasibility Analysis Report, Environmental and Safety Designs, Inc., 8/20/1984

1983

- Engineering Study of Hazardous Discharges from Munitions Production Facilities, Holston Army Ammunition Plant, prepared by Mason & Hanger-Silas Mason Co., Inc., DA Corps of Engineers, Huntsville Division, 8/1/1983
- Phase 1, Hazardous Waste Study No. 37-26-0147-84, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, AEHA, 6/17/1983

1981

- Engineering Report on Investigation and Evaluation of Pollution Aspects of Abandoned Coal Tar Disposal Site, Area "A", Holston Army Ammunition Plant for Holston Defense Corporation, Kingsport, TN. Memphis, TN., Wegman, Leonard S., Inc., 9/1/1981

Previous Studies Table continued next page

PREVIOUS STUDIES, continued

1980

- Hazardous Waste Survey No. 81-26-8205-81, Phases 5 through 7, USATHAMA, 3/27/1980
- Installation Assessment of Holston Army Ammunition Plant, Report No. 148, USATHAMA, 1/1/1980

1979

- Hazardous Waste Survey No. 81-26-8205-81, Phases 1 through 4, USATHAMA, 7/19/1979

1975

- Installation Assessment, Holston AAP, TN. Las Vegas, NV. [Note: Also referred to as Environmental Photographic
- Interpretation Center (EPIC)], EPA, Environmental Monitoring Systems Laboratory, 6/3/1975

2005 IAP

Holston AAP ER,A Active Site Descriptions

MISC LANDFILLS - SWMU 24
HSAAP-01

SITE DESCRIPTION

B-200/Flyash Landfill (SWMU 24) was listed in the A.T. Kearney RCRA Facility Assessment as requiring confirmatory sampling.

The Flyash Burial/Coal Tar B-200 (SWMU 24) site is just south of Building 200, Steam Plant at Area B. It is not known when or for how long the site was used as a dumping ground. The size of the site is also unknown. Wastes were discovered in 1987 during construction of the coal handling facility (Project 5852199). The portion of the site used for coal handling activities was covered with compacted clay, topsoil, and revegetated in 1987. The site is currently being used for coal storage and handling. Results from a sample collected from an adjacent well indicated the presence of SVOCs below drinking water standards. A downgradient well had no contamination. A future RFI is proposed at this location.

Formerly this site included Construction Debris Landfill (SWMU 19), Rock Quarry Landfill (SWMU 20), Rock Dam Landfill (SWMU 21) and Interchange Yard/Flyash Landfill (AOC-H). SWMUs 19 and 20 were moved from this site to HSAAP-33 in 2003 because of the consolidation of the RFI for site-wide GW. SWMU 21 was moved from this site to HSAAP-27 in 2002 because of its close proximity. AOC-H was moved to HSAAP-20 in 2002 because of its close proximity and NFA status.

STATUS

RRSE RATING: High

CONTAMINANTS:
Metals, Explosives, VOCs, SVOCs

MEDIA OF CONCERN:
Soil, Groundwater, Sediment

COMPLETED IRP PHASE:
RFA, CS

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RC

PROPOSED PLAN

A request for approval of a land-use controls remedy will be submitted to TDEC. There is an active coal pile that prohibits access to this site.

TAR (WWII) NEAR POND 3, AREA B TAR - SWMUs 14, 26
HSAAP-03

SITE DESCRIPTION

SWMU 14 was removed from HSAAP-22 to be included in this site. **SWMU 14** is located just across Wilcox Drive to the west of Area A's main production area. The landfill is 40 to 50 feet north of the South Fork of the Holston River. The site is approximately three acres with depths of 10 to 15 feet and was used from 1949 to 1978. Discrete coal tar masses have been observed on the bank of the South Fork of the Holston River along the northwest side of this landfill. A RFI was conducted in FY01 to determine the amount of coal tar along the bank and assess the potential for migration of coal tar from the landfill to the river. The report confirmed the location of the coal tar masses and concluded that migration has not occurred from buried coal tar. Therefore, the discrete coal tar masses on the riverbank are likely discards from dumping or the capping and closing of the landfill. The RFI report was submitted to TDEC and was approved. Coal tar that has breached the cap in the NW portion of SWMU 14 has been removed and the cap was repaired.

STATUS

RRSE RATING: High

CONTAMINANTS: PAHs

MEDIA OF CONCERN: Soil, Surface Water

COMPLETED IRP PHASE: RFA, RFI

CURRENT IRP PHASE: LTM

FUTURE IRP PHASE: LTM

In August 2003, small amounts of tar that had breached the landfill cap were removed and the cap was repaired.

On 3 Oct 03, installation personnel inspected the area along the riverbank as well as the landfill. No coal tar is migrating into the river or breaching the cap of the landfill.

SWMU 26 is located between Sodium Nitrate Ponds 3 and 4 at Area B. It is not known when or for how long the site was used as a dumping ground. The RCRA Part B Application states that approx. 178 cubic yards of coal tar was dumped down the railroad embankment during World War II and covered with either clay or mixed soil and railroad ballast. Small trees and undergrowth covered the site.

The buried coal tar was discovered in the mid 80s during replacement of a 36-inch water main. At that time, the excavated tar was removed, solidified, and disposed of in the sanitary landfill. The initial discovery revealed a site referred to as the WWII Tar Site, that is approximately 300 feet by 100 feet. However, as the actual dumping area could have extended throughout the length of the railroad track (about 2 miles at Area B and 6 miles in the corridor), the size or number of sites is not known. Tar has also been found inside Pond 3 (considered part of the same material) and in the area behind Bldg. 200 (HSAAP-01). All these sites are off the embankment of the same rail line. A RFI report was written in 1996 prior to issuance of corrective action order. A follow-up RFI was conducted to define the limits of the SWMU and assess release potential. The report identified the presence of one large area (73000 sq ft) and one small area (9300 sq ft) mass of coal tar buried at the site to a maximum depth of four feet. Soil contamination is limited to the area that contains buried coal tar. Groundwater data does not indicate a release of hazardous constituents from these coal tar masses. The RFI report was submitted to TDEC and was approved.

Site Description continues next page

SITE DESCRIPTION, continued

Formerly this site included Area B Tar Burial Site (SWMU 25), SWMUs 97, 98, and 102. SWMU 25, 97 and 98 were moved from this site to HSAAP-08 in 2002 because of their close proximity. SWMU 102 was moved to HSAAP-22 in 2002 because of its close proximity and NFA status.

In August 2003, small amounts of tar that had breached the landfill cap were removed and the cap was repaired. An annual inspection program was performed in 2004 and no additional coal tar was observed along the riverbank.

PROPOSED PLAN

SWMU 14: Final remedy is land-use controls and cap maintenance. Semi-annual inspections to insure cap integrity.

SWMU 26: Final remedy is land-use controls and cap maintenance. Semi-annual inspections to insure cap integrity.

SURFACE IMPOUNDMENTS REQUIRING CONFIRM. SWMUs 25, 97, 98
HSAAP-08

SITE DESCRIPTION

This site was formerly titled "Surface Impoundments Requiring Confirmation". This area includes the following: Area B Tar Burial Site (SWMU 25), Coal tar along the Area A-Area B Corridor (SWMU 97) and Coal tar contamination south of the recently closed sanitary landfill (SWMU 98). In 2002, SWMUs 25, 97 and 98 were placed in HSAAP-008 because of their close proximity.

Formerly HSAAP-08 included Area B Coal Pile (SWMU 27), Flyash Landfill Sedimentation Pond (SWMU 28), former nitric acid neutralization basin (SWMU 30), former nitric acid neutralization basin (SWMU 33), Unlined spill pond (SWMU 35), Lined spill pond (SWMU 36), and the A-1 equalization basin (SWMU 42). SWMU 27 was moved to HSAAP-036 in 2002 because it is an active site and is not eligible for ER,A funding. SWMU 28 was moved to HSAAP-20 in 2002 because it is classified as NFA. SWMU 35 was moved to HSAAP-33 because of the consolidation of site-wide GW investigation, SWMUs 30, 33, 36, and 42 were moved to HSAAP-11 in 2002 because they are classified as NFA.

STATUS

RRSE RATING: High

CONTAMINANTS: SVOCs (PAHs)

MEDIA OF CONCERN: Soil

COMPLETED IRP PHASE: RFA, CS

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RC

Area B Tar Burial Site (SWMU 25) is located on the west end of Area B, just to the east of the Closed Industrial Landfill (HSAAP-04/SWMU 17) off Road 1932. The closed site is 15 feet wide, 75 feet long and about 10 feet deep. This site contains approximately 60 cubic yards of coal tar from Area A Gas Producers. The pit received coal tar from 1978 to 1980 when it was closed and covered with clay. Another two feet of clay was added in 1985. Grass is growing as a final cover at the site. The tar is considered a solid waste with hazardous constituents. A RFI is proposed.

Coal tar along the Area A-Area B Corridor (SWMU 97) was identified by TDEC in 1999 as coal tar contamination along the Area A – Area B corridor. This unit covers the potential areas where coal tar may have been indiscriminately dumped in the past. No specific areas have been located and a visual site inspection will be performed to address a RFI requirement.

Coal tar contamination south of the recently closed sanitary landfill (SWMU 98) was identified by TDEC in 1999 as coal tar contamination south of the recently closed sanitary landfill, SWMU 17. This unit consists of individual small coal tar waste that was indiscriminately dumped on the ground surface on the south side of the road leading to the rock quarry. A RFI is required.

Site Description continues next page

SURFACE IMPOUNDMENTS REQUIRING CONFIRM.
SWMUs 25, 97, 98, *continued*
HSAAP-08

PROPOSED PLAN

Area B Tar Burial Site (SWMU 25): RFI activities will be initiated in 2005; primarily consisting of a visual inspection, soil sampling and soil borings.

SWMU 97: A RFI will be conducted in FY05, consisting primarily of a visual inspection.

SWMU 98: A RFI will be initiated in FY05, consisting primarily of a visual inspection.

FLY ASH LF, PONDS 1 & 2 - SWMUs 38, 39
HSAAP-13

SITE DESCRIPTION

This site is located north of Building D-10 in Area B and lies south of Road 1921 and just north of the main line railroad. The site contained two ponds (SWMUs 38 & 39) and was initially used from 1969 to 1972 for liquid sodium nitrate storage. The ponds had a storage volume of 11.1 million gallons.

The ponds were closed in the 1970s. In the fall of 1983, the site was opened as a flyash landfill (SWMU 22) (5.5 acres, 182,410 cy capacity). The landfill was closed in the fall of 1997.

Adjacent to these SWMUs is a sedimentation pond for the flyash landfill (SWMU 28), which may have received runoff from the explosives manufacturing area. The Flyash Landfill (SWMU 22) and the Sedimentation Pond (SWMU 28), which are located on top of SWMUs 38 & 39, are regulated under TDEC's Solid Waste Division.

STATUS

RRSE RATING: Medium

CONTAMINANTS: Explosives

MEDIA OF CONCERN: Sediment

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RC

PROPOSED PLAN

The RFI report will be completed in 2005.

PRODUCTION AREA B DRAINAGE DITCHES - SWMU 2
AOC A, B, G
HSAAP-23

SITE DESCRIPTION

HSAAP-23 includes production drainage ditches (SWMU 2), Mad Branch (AOC A), the AFG Stream (AOC B) and Arnott Branch (AOC G).

Sampling of sediment along selected sections of the ditches was conducted in 1997 and reported to the TDEC in November 1999 as part of the Confirmatory Sampling Work Plan. This sampling indicated a limited release of SVOCs at Area B, and metals at Area A. Additional sampling of ditch sediments and surface water samples was recommended, and ditch sediments and surface water was sampled in November 2000 and October 2001. The report for this sampling event was completed and submitted to TDEC in March 2002. Low concentrations of RDX were detected in surface water samples collected at Area B. Both HMX and RDX were detected in less than 10 percent of the sediment samples at collected at Area B. The sources of the contaminants in the ditches at Area A were determined to be upstream (offsite), and of such low concentrations that no further action was recommended.

A RFI was conducted for the Area B in FY03-04, production area drainage ditches (SWMU 2 and AOC G) to determine the concentrations and extent of RDX and HMX in the drainage ditch system. Collection of cooling water samples, surface water samples, stormwater samples (near production buildings) and sediment samples (along ditch banks) were included in the RFI. The surface water samples identified the explosive compound RDX as the only contaminant of concern requiring additional investigation. Sediment concentrations in the ditches were below relevant action levels.

No further sampling is proposed for AOC A, B and G.

STATUS

RRSE RATING: Medium

CONTAMINANTS:
Explosives, Metals

MEDIA OF CONCERN:
Sediment, Surface Water

COMPLETED IRP PHASE:
RFA, CS

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RC

PROPOSED PLAN

The RFI report will be amended and No Further Action will be requested from TDEC.

PESTICIDE AREAS NEAR B-105, B-148
SWMUs 77, 78, 86, 87, 88
HSAAP-26

SITE DESCRIPTION

The following SWMUs are adjacent to Building 148: Pesticide Rinsate Pre-filter Tank (SWMU 77), Pesticide Rinsate Septic Tank (SWMU 78), Pesticide Drain Field (SWMU 86), Pesticide Washdown Area (SWMU 87). After the mid-70s, HSAAP began the practice of using pesticide container diluent for additional spray work the next day or disposing of it on the same sites where the original material was used (reference letter, Dept of Army, HSAAP, Kingsport, TN S: Installation Pest Management Program Survey No.61-0505-17, HSAAP, Kingsport, TN .6-10 Dec 1976, for Commander, US Army Material Development and Readiness Command, ATTN: DRCSG, 5001 Eisenhower Ave., Alexandria, VA.,3 Oct 1977.)

STATUS

RRSE RATING: High

CONTAMINANT: Chlorinated pesticides

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA, CS

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RFI, IM

The Pesticide Drain Field (SWMU 86) is 50 feet wide and 50 feet long and is now vegetated. The drain field and septic system **(Pesticide Rinsate Septic Tank - SWMU 78)** were constructed during the early- to mid-1970s. The floor drain inside Bldg. 148 was plugged prior to 1980, and the drain in the concrete catch basin outside of the building was plugged in 1984. The only waste the drain field receives is from handwashing in the sink inside Bldg. 148. No pesticide fluid has been disposed of in the sink. There are ~1050 gallons of pesticide-contaminated water remaining in the septic tanks.

Pesticides and herbicides were detected in soil and GW samples collected from the SWMUs (77, 78, 86, and 87) associated with Building 148.

The RFI was conducted in 2003 at SWMUs 77, 78, and 86. Pesticide contamination appears confined to the immediate area of the site. There is no off-site contaminant migration in groundwater.

In 2004, a source removal was conducted (the residual tank liquids, the tanks and associated piping were removed).

The **WWII Pesticide Equipment Washdown Area (SWMU 88)** is located in the Area B shop area, south of Road 1966, and southwest of the Service Station (Building 105). The unit was used to rinse off pesticide dispersing equipment between the 1940s and the early 1970s. The unit consists of a pit filled with 6-inch cobbles. The depth of the pit is approximately 2.5 feet and the surface dimensions are about 20 feet wide by 35 feet long.

Four soil samples were collected from two soil borings conducted at SWMU 88 as part of the FY1999 Confirmatory Sampling at Holston AAP. Pesticides and herbicides were detected in all four samples. Petroleum hydrocarbons were detected in one sample. The results of this sampling, as reported in the November 1999 Confirmatory Sampling Work Plan, indicate that pesticides, herbicides, and petroleum product, have been released to the subsurface soils at the unit and may impact groundwater quality.

Site Description continues next page

PESTICIDE AREAS NEAR B-105, B-148
SWMUs 77, 78, 86, 87, 88, *continued*
HSAAP-26

PROPOSED PLAN

SWMUs 77, 78, 86, 87: Interim Measures will be initiated in 2005, including limited drainfield soil removal. A revised Interim Measures Work Plan is no longer necessary.

SWMU 88: A RFI report will be completed in FY2005.

SANITARY LANDFILL WEST OF B-155, CLOSED - SWMUs 21, 83
HSAAP-27

SITE DESCRIPTION

This site includes: Rock Dam Landfill (SWMU 21) and Waste Thermal Treatment Units (SWMU 83). SWMU 83 was added to HSAAP-027 in 2002.

Formerly this site included Sanitary Landfill West of B-155, Closed (SWMU 18). SWMU 18 was moved from this site to HSAAP-33 in 2002 because of the consolidation of site-wide GW investigation.

Rock Dam Landfill (SWMU 21) consists of approximately 5 acres located SE of the former Active Sanitary Landfill and south of Road 1932. An earthen dam (soil and rock) was constructed to create a pond, but the pond failed due to karst geology underlying the site. The area behind the dam was then used as a Construction Debris landfill. There is approximately 30 feet of waste with a 2 ft clay cap. The C/D Landfill consists of approximately 2 acres located immediately SW of the former Active Sanitary Landfill (SWMU 17), adjacent to Road 1932. This SWMU was listed in the A.T. Kearney RCRA Facility Assessment as requiring confirmatory sampling. As a result of confirmatory sampling, a NFA is approved by the State.

Waste Thermal Treatment Units (SWMU 83) are located at B 121 in Area B, off facility road 1967B. The smaller oven measures 21 feet long by 8 feet wide by 7 feet high; the larger oven has dimensions of 12 feet long by 12 feet wide by 14 feet high.

The walls of both are approximately 5 inches thick. The base of each unit is constructed of concrete and the walls and ceilings are made of metal. The furnace used to heat the ovens is ignited by propane and runs on No. 1 Fuel Oil. The ovens are heated approximately 150 degrees per hour to a maximum temperature of 610 to 650 degrees. After a period of three hours at this temperature, the ovens are allowed to cool overnight. This unit thermally treats metal parts and scrap metals that may have been contaminated with explosive residues. Prior to contamination, these materials were treated with hot caustic and then stored in the Production Yards (SWMU 70). Decontaminated metal is stored in a fenced, decontaminated equipment storage area adjacent to the Ovens until it is returned to service or is sold as surplus waste.

STATUS

RRSE RATING: Low

CONTAMINANTS: Lead

MEDIA OF CONCERN: Soil

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RFI, IM

PROPOSED PLAN

SWMU 21: NFA based on CS results.

SWMU 83: An IM will be performed in 2005 which will primarily consist of removal of lead-contaminated soil. The confirmatory sampling performed after the excavation will be used to characterize the site.

LEAKING UST B-105 - SWMU 51/52 AOC C
HSAAP-29

SITE DESCRIPTION

The former UST (**AOC C**) was located in the central part of Area B. The site is located on about two acres and was built in 1943. The contamination was discovered 16 Jan 1990 when diesel fuel was observed seeping through a crack in the pavement along the roadway near Bldg. 105. Inventory revealed a loss of 106 gallons. Upon investigation, gasoline contamination in the entire general area of Building 105 was also discovered. In 1994, the USTs for gasoline and diesel fuel were removed and aboveground tanks installed. During 1995, a corrective action plan (CAP) was approved and an air sparge/vapor extraction system was installed. Remediation began August 1995. Site-status monitoring reports were required every 6 months. In August 2000 TDEC instructed HSAAP to cease operation of the extraction system at Building 105. There are fourteen MWs in the area, at depths of 12 - 83 ft.

Vehicle Wash Pad Outside Building 105 (SWMU 51) and Vehicle Wash Pad Inside Building 105 (SWMU 52) - The units are located inside and outside the Service Station (Building 105) at Area B. The units manage wash water that may contain oil or fuel-related compounds. The units consist of a drain grate above a concrete catch basin. Each basin is surrounded by a concrete pad. The concrete basin discharges to the industrial sewer. Prior to connection of the unit to the IWTF, wastewater may have been discharged to a ditch located behind the building. Confirmatory sampling was completed indicating the presence of SVOCs at levels above industrial standards.

STATUS

RRSE RATING: High

CONTAMINANT: POL

MEDIA OF CONCERN: Sediments, Groundwater

COMPLETED IRP PHASE: RFA, CS, IM

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RFI

PROPOSED PLAN

SWMU 51/52: The RFI report will be finalized in FY05 and will recommend NFA.

AOC C: The RFI report will be finalized in FY05. Corrective Measures will be initiated.

FIRING RANGES
HSAAP-30

SITE DESCRIPTION

This site consists of three separate sites (each approximately one acre in size) and are located in the central part of Area B.

One of the sites, B-134, was used prior to 1980 as a small arms firing range. At present, this site has been leveled as a result of the construction of a settling basin.

Another site of approximately one acre by the raw water reservoir was used prior to 1984. This site is undisturbed.

A third site near B-234 was used prior to 1982. This site is undisturbed and overgrown with vegetation.

These sites were not identified as a potential SWMU until after the 1991 RFA.

STATUS

RRSE RATING: High

CONTAMINANT: Lead

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA, CS

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RFI, CMI(C)

PROPOSED PLAN

A records search and site reconnaissance will be performed in FY05 in an attempt to determine the site locations.

An IM will be initiated in 2005 which will primarily consist of removal of lead-contaminated soil. The confirmatory sampling performed after the excavation will be used to characterize the site.

Site B-134 will be renamed SWMU 104, the Reservoir Site will be SWMU 105, and B-234 will be SWMU 106.

FORMER SOLVENT BURN TANK (SITE-WIDE GW)
SWMUs 18, 19, 20, 29, 35, 50
HSAAP-33

SITE DESCRIPTION

The site-wide groundwater monitoring program, begun in conjunction with work on SWMU 50, consists of semiannual monitoring of 51 wells across the installation, 26 of which were constructed in the spring of 2001. Combined with the sampling of 25 selected existing wells, the overall sampling program is designed to provide a comprehensive assessment of groundwater conditions in Area B.

Four sets of data collected over two years generally show no unexpected results (shown below) with the exception of a high level of explosives detected in well MW99. Additional investigation was done in the vicinity of this well and at other similar structures (H Buildings) in the explosives production area. The results of this additional investigation show two areas of groundwater contamination (explosives).

STATUS

RRSE RATING: High

CONTAMINANTS:
Explosives, VOCs, Fuel, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA/CS, TDEC RFA, IM

CURRENT IRP PHASE: RFI

FUTURE IRP PHASE: RFI, CMI(C)

The GW RFI work for all SWMUs has been combined into this AEDB-R Site. Closed Sanitary Landfill West of B-155 (SWMU 18), Construction Debris Landfill (SWMU 19), Rock Quarry Landfill (SWMU 20), (possible) sedimentation pond for the sanitary landfill (SWMU 29), and the unlined spill pond (SWMU 35) were incorporated with the former solvent burn tank (SWMU 50) in HSAAP-33 in 2002 because of the consolidation of site-wide GW investigation.

Closed Sanitary Landfill West of B-155 (SWMU 18) is located in Area B south of Building 9 (Electrical Substation) off Road 1901 and west of Bldg. 155 (Production Administration). The three acre area was used from 1967 to 1984. It was closed on 27 August 1984 and is registered with the county. Approximately 2,160 cubic yards of trash, garbage, bagged asbestos, empty pesticide containers, and fluorescent light bulbs were landfilled at this site. GW monitoring results indicate mercury levels above State standards.

The Construction Debris Landfill (SWMU 19) unit is located in Area B, south of the existing Sanitary Landfill (SWMU 17). It was placed upon the former site of the Sedimentation Pond for the Sanitary Landfill (SWMU 29). The dimensions of the unit are unknown. The base of the pond collapsed due to flooding in 1984. According to facility representatives, the state allowed the facility to fill the area with uncontaminated construction debris. At the time of the VSI, the area was covered with a large pile of wood.

Site Description continued on next page

SITE DESCRIPTION, continued

The Rock Quarry Landfill (SWMU 20) is a two-acre, limestone quarry located at the west end of Area B, adjacent to the Holston River. The site was used as a demolition landfill in the 1940s during construction of the installation. It was closed in 1983 and is registered in Hawkins County as a closed landfill. This site contains six cubic yards of concrete taken from an explosives production building. The concrete was decontaminated by washing with water and treating with lime before burial, however, explosives residue may remain. Other material disposed of in the landfill includes light metal, cinders, small quantities of fly ash, fiberglass insulation, concrete rubble, trees and stumps, and rubber.

The surface water (storm water runoff) at this site was monitored quarterly between 1983 to 1998, showing stable water conditions, with no primary or secondary water quality criteria violations among those parameters monitored. Explosives were detected above the tap water risk based concentrations (RBC) in a groundwater sample collected during the 1997 USACHPPM Release Assessment. A RFI is proposed at Rock Quarry (SWMU 20). HSAAP has requested approval from TDEC to construct a concrete pad with lightning protection and a gravel access road over a portion of the landfill.

The **former sedimentation pond for the sanitary landfill (SWMU 29)** is an unlined unit located in Area B, south of the Active Sanitary Landfill (SWMU 17). It received runoff from SWMU 17. In 1984, the dam for this pond collapsed when flooded. The unit was subsequently filled with construction debris and is currently the site of the Construction Debris Landfill (SWMU 19). The dimensions of the unit are unknown. At the time of the visual site inspection, the unit was covered with soil and contained a pile of wood.

SWMU 35, the unlined spill pond, is located south of the lined pond in Area B. The site is less than one acre. Additional CS was performed in Nov. 2000 and no soil contamination was found. Explosive compounds were detected in two wells downgradient from this site. These two wells are part of the site-wide GW monitoring network. TDEC approved the NFA status.

The **former solvent burn tank (SWMU 50)** is located northwest of the bermed burn pan area. The tank was used prior to 1984 and closed under interim status regulations in 1984. It was used for the open burning of explosive-contaminated spent non-halogenated solvents and oils. Closure of the site was approved under current regulations in January 1998 when the tank was removed. The Second Semi-Annual Report in 2002 (USACHPPM) dated 8 Oct 2002 recommended to continue monitoring one downgradient well (STMW-15) and discontinue monitoring the other 6 wells adjacent to the unit. This recommendation was consistent with verbal recommendations made by TDEC personnel at the 2003 IAP (April 2002), and again in a conference call on 20 September 2002.

Proposed Plan continued on next page

FORMER SOLVENT BURN TANK (SITE-WIDE GW)
SWMUs 18, 19, 20, 29, 35, 50
HSAAP-33

PROPOSED PLAN

Site-wide Groundwater: Continue the RFI in FY05.

SWMU 18: A RFI will be initiated in FY05. The landfill cover will be maintained as necessary.

SWMU 19/29: A RFI will be initiated in FY05, which will include installation of monitoring wells and a spring survey. The landfill cover will be maintained as necessary.

SWMU 20: Continue the RFI process through FY05. The landfill cover will be maintained as necessary.

SWMU 35: NFA.

SWMU 50: One downgradient well (STMW-15) will be monitored semiannually.

GAS PRODUCER CONTAMINATION
SWMUs 4, 96, 103
HSAAP-37

SITE DESCRIPTION

SWMU 96 was the Producer Gas Building Coal Tar Liquor Storage Tanks. This unit was located between Building 10 (Producer Gas Building) and the associated cooling coils in Area A. The unit consisted of aboveground storage tanks surrounded by a scrubbing and cooling unit. The waste was generated from the production of coal gas in Building 10. The unit was closed when the Producer Gas Building ceased operations and the tanks and concrete wall structure were removed in 1996. Visibly contaminated soil was removed from the excavation and replaced with clean soil. A removal action was completed during 1997. Concentrations of benzo[a]pyrene and other SVOCs exceeded EPA Region IX PRGs in numerous soil samples collected at SWMU 96 in Feb and May 2002. These exceedences were located near the former location of the coal tar liquor storage tanks and adjacent to the north side of the Producer Gas Facility. This analytical work confirms site observations of a substantial coal tar liquor release to the soil. Much of this soil is located below the groundwater level near one corner of the building, and is releasing hazardous constituents to the groundwater. Arsenic and benzene concentrations slightly exceeded EPA MCLs for drinking water in samples collected from the monitoring well located closest to the site.

STATUS

RRSE RATING: High

CONTAMINANTS: PAHs, VOCs, SVOCs, Metals

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA/CS, RFI, CMI(C), IM

CURRENT IRP PHASE: LTM

FUTURE IRP PHASE: LTM

As a result of a presentation of preliminary analytical data in April 2002, on 26 June 2002 the state issued an Interim Measures Order. In October 2002, four monitoring wells were installed as an interim measure to address concerns over potential migration to the nearby Holston river. Perceived delay in the Army's initial response resulted in the issuance of a NOV, which has subsequently been resolved.

In Spring 2003 a geophysical survey was conducted in the area between the Producer Gas Building and the Holston River. That survey identified bedrock fractures and degraded (increased electrical conductivity) groundwater between the building and the river. In August 2003, three monitoring wells were installed in the bedrock fractures. At the same time additional soil data was collected beneath the exhauster building and adjacent to the decanter building on the north side of the facility. This soil data confirmed the presence of coal tar/liquor mass in the soil beneath a portion of the exhauster building and the decanter building on the north side of the facility.

Site Description continued on next page

GAS PRODUCER CONTAMINATION
SWMUs 4, 96, 103
HSAAP-37

SITE DESCRIPTION, continued

Prior to 1949, coal tar may have been disposed of in the ground at this site. Beginning in 1949, disposal occurred at a site along the Holston River, approximately 2000 to 3000 feet from the facility, at SWMU 14 as well as other locations. The coal tar disposal practices changed in the early 1980s with improvements in the collection system including installation of concrete holding tanks behind Building 8. Partial building demolition and hot spot removal was completed in FY04.

Coal Tar Tanks (SWMU 4) consisted of aboveground steel tanks that were located behind Building 8. The tanks stored coal tar/coal tar liquor, generated at Building 10 (Area A), prior to burning. The Producer Gas Building (Building 10) began operation circa WWII and operated until fuel conversion was completed for natural gas in 1994. The tanks were removed from the site in 1996. Coal tar and coal tar liquor spillage from the tanks and associated coal tar pit (used for draining water off the top of the coal tar in the steel tanks) in the past has contaminated soil at the site. A RFI was completed in Feb 2002. The report determined that there is a buried discrete coal tar mass in place and it is exposed at the surface. In August 2003 the buried coal tar mass and associated concrete retaining basin were removed. A closure report was submitted to TDEC in 2004.

Coal Tar Site (SWMU 103) is located on the south side of the Area A Steam Plant (Building 8). The unit consisted of a ditch that extended from the rear of Building 8, originating at SWMU 4, to the South Fork of the Holston River. An aboveground tank for filtered water was moved over a portion of the unit in the 1970s during installation of the Building 8 electrostatic precipitators. Little documentation has been found describing the operation of the unit except that blow down from the coal tar tanks (SWMU 4), or lines associated with the steam atomizer burners, once located behind Building 8 drained directly on the ground surface and flowed south to the South Fork of the Holston River. The discharged water may have contained some coal tar and possibly contained contaminants leached from coal tar. This past discharge is evident by the presence of coal tar behind Building 31, adjacent to the installation fence located along the South Fork of the Holston River. However, no visual evidence of the ditch remains between the rear of Building 8 and the installation fence at the top of the riverbank of the South Fork of the Holston River. It is likely that the coal tar at this SWMU originated from these tanks. The ditch no longer exists between the facility fence and Building 8. However, the outfall of SWMU 103 still exists at the bank of the South Fork of the Holston River. A RFI was completed in Feb 2002. Coal tar was identified on the ground surface on the top of the riverbank where the security fence crosses the SWMU. No coal tar masses were identified beneath the ground surface at the unit. Coal tar was identified on the riverbank and riverbed where the unit flowed into the South Fork of the Holston River. The RFI report was submitted to TDEC and was approved.

PROPOSED PLAN

SWMU 4: This SWMU is response complete with land-use controls for the areas that are inaccessible.

SWMU 96: Interim Measures will be completed.

SWMU 103: Initiate Interim Measures in FY05, which consists of collecting discrete masses of coal tar from the top of the riverbank on the south side of SWMU 103.

MISC. STORAGE AREAS REQUIRING CONFIR. SWMUs 7, 57, 58, 60, 65, 69, 70, 74, 75, 90 - AOC F, I, J HSAAP-38

SITE DESCRIPTION

HSAAP-38 consists of the following SWMUs used for such purposes as to store product materials, treat and store recovered material, or store wastes: Propyl Formate Tanks (**SWMU 7**), Oily Rags Satellite Accumulation Area (SAA) (**SWMU 57**), Waste Oil Accumulation Area (**SWMU 58**), Waste Oil Drainage Pad at Bldg 556 (**SWMU 60**), Respiratory Cartridge SAA (**SWMU 65**), Scrap Metal Yard (**SWMU 69)**, Production Yards (**SWMU 70**), Ball Field Staging Area (**SWMU 74**), T-1 Building Staging Area (**SWMU 75**), Area A Former Coal Pile (**SWMU 90**), Manganese Ore Piles (**AOC F**), Building 8 Explosives Testing Area (**AOC I** - see HSAAP-16 in RC Site Descriptions), and Area B Former Coal Piles (**AOC J**).

STATUS

RRSE RATING: High
CONTAMINANTS: Metals, POL
MEDIA OF CONCERN: Soil
COMPLETED IRP PHASE: RFA
CURRENT IRP PHASE: RFI
FUTURE IRP PHASE: RFI, IM

Formerly this site included Decontamination Ovens (SWMU 83). SWMU 83 was moved from this site to HSAAP-027 in 2002 because of its close proximity.

Production Yards (SWMU 70) consists of laydown storage areas at various locations around the facility. No evidence of release was observed during the VSI or identified in the available file material. Confirmatory sampling at Yard 12 (B550) indicated the need for further investigation, primarily for metals.

High levels of TPH were detected in the soil at **Manganese Ore Piles AOC F.** Additional sampling was completed at this AOC in October 2001 and reported in the final ACS report (March 2002). Results indicate a need for removal action.

PROPOSED PLAN

Manganese Ore Piles (AOC F): Interim Measures will be initiated in FY05, which consists of soil excavation.

Building 8 Explosives Testing Area (AOC I): A RFI will be potentially initiated in FY05.

Area B Former Coal Piles (AOC J): NFA per approval of March 2002 additional CS Report.

SWMU 70: Interim Measures will be completed in FY05, which consists of soil excavation.

SWMUs 7, 57, 58, 60, 65, 69, 74, 75, 90: require no further action (per approval of March 2002 additional CS Report).

2005 IAP

Holston AAP
MMRP
Site Descriptions

MMRP Site Descriptions

HSAAP-001-R-01 BURNING GROUND

The closed portion of the Burning Ground includes Burn Piles No. 3, 4, and 5 (SWMU-47) and covers 12 acres on the eastern side of the Burning Ground located south of the Area B main production area and north of the Holston River. It is totally enclosed by a chain link fence. Open burning of waste explosives, explosive contaminated waste, and contaminated solvents were conducted from 1940 to 1987. The wastes may have contained with RDX, HMX, and TNT. In March 1984, the explosive burn pads, located in the active Burning Ground area, were converted to above ground pans. In August 1985, the soil from this area was excavated and thermally treated to close the pad area. A berm was also placed around the active explosive burn pans to provide flood protection. A Remedial Investigation/ Feasibility Study is completed for the active portion of the Burning Ground under HSAAP-015. Burning Piles 3, 4, and 5, in the closed portion, however, are not part of this investigation.

HSAAP-002-R-01 EXPLOSIVES TESTING AREA

The Explosives Testing Area is located in the northern portion of Area B near the shop area just north of the main lab. The site contained a rectangular concrete pad where small quantities of explosives were detonated as a safety training exercise for facility personnel. The site covered approximately one acre and was in operation from 1943 to around 1991. Confirmatory soil sampling as part of a RFA in 1991 indicated low-level concentrations of lead and explosives. The site is currently undeveloped. HSAAP-016 has been identified as response complete, reason “Other,” in DSERTS, however, according to installation personnel, it is response complete because it is ineligible for further IR funding.

2005 IAP

Holston AAP
ER,A RC
Site Descriptions

ACTIVE SANITARY LANDFILL - SWMU 17
HSAAP-04

SITE DESCRIPTION

This site is located on the west side of Area B off Road 1932. The site is 8.5 acres and has been in operation from the fall of 1983 until October 1996. Trash, asbestos, glass, empty pesticide cans, construction waste, scrap lumber, metal, rubber tires, industrial and sanitary wastewater sludge, ash from the refuse incinerator, solidified tar, and other wastes have been placed in this landfill. Groundwater tests have shown manganese, iron, nitrate, selenium, pH (lower than 6.5), and TDS above EPA's drinking water standards at times.

This site is not eligible for ER,A funding. The post-closure plan will be followed. This site is being monitored by the Solid Waste Program.

STATUS

RRSE RATING: Medium

CONTAMINANTS:
Asbestos, Metals, Refuse

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199108

NITRIC ACID SPILL POND - SWMUs 30, 33, 36, 37, 42
HSAAP-11

SITE DESCRIPTION

This site includes the following: the former nitric acid equalization basin (SWMU 30), neutralization basin (SWMU 33), lined spill pond (SWMU 36), Nitric Acid Spill Pond (SWMU 37) and the A-1 equalization basin (SWMU 42). In 2002 the SWMUs 30, 33, 36 and 42 were placed in HSAAP-011 because of their NFA status.

An approved closure plan was prepared for an equivalency determination for the **former nitric acid neutralization basin (SWMU 30)**. The unit is No Further Action based on TDEC approval of CS Work Plan (Feb 2000).

The **active neutralization pond (SWMU 33)** is not eligible for ER,A funding. (per August 2000 RFI Work Plan approval).

The **lined spill pond (SWMU 36)** is located south of the B-line (Acetic Acid Recovery) in Area B. The site, approximately 30 by 50 feet, is thought to have been in operation from 1987 to 1988. The unit is No Further Action based on TDEC approval of the CS report (June 2000).

SWMU 37 is located south of the Nitric Acid Area in Area B. The site is less than one acre and has been in operation since 1976.

Monitoring of the **A-1 equalization basin (SWMU 42)** was conducted between 1991-1994. The unit is No Further Action based on TDEC approval of the CS Work Plan (Feb 2000).

SWMU 33: This site is active and is not eligible for ER,A funding.
SWMU 37: This site is active and is not eligible for ER,A funding.
SWMUs 30, 36, 42: NFA status.

STATUS

RRSE RATING: Low

CONTAMINANTS:
Acid, Industrial Wastewater

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199102

TAR BURIAL PIT AREA B - SWMU 25
HSAAP-12

SITE DESCRIPTION

This site is now part of HSAAP-08.

STATUS

RRSE RATING: High

CONTAMINANTS: Explosives, Metals, Organics

MEDIA OF CONCERN: Soil

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 200001

BURNING GRND SOUTH OF MFG AREA - SWMUs 43 THROUGH 49
HSAAP-15

SITE DESCRIPTION

This site includes the **general burning ground area (SWMU 43)** including the **former burning pads (SWMU 44)**, **current burn pans (SWMU 45)**, **burning cages (SMWU 46)**, **burning piles (SWMU 47)**, **former sludge dewater station (SWMU 48)**, and **vehicle wash pad (SWMU 49)**. The only ER,A eligible SWMUs listed above are SWMU 44, 48 and 49. The operation of SWMU 45 is under interim status. Within the confines of the burning ground is the former Solvent Burn Tank (SWMU 50), which is addressed under HSAAP-033.

The burning ground is located at the south of the Area B main production area and just north of the Holston River. There are several operations that were or are conducted in this area: open burning of waste explosives, open burning of explosive contaminated waste (cages and piles), and open burning of contaminated solvents (from 1980 to July 1984). It is situated in a 100-year flood plain. Waste treated at this area have included waste explosives, explosive contaminated materials, construction/demolition debris from building rehabilitation activities, hydraulic oil, and process by-product chemicals to include explosive contaminated solvents.

STATUS

RRSE RATING: High

CONTAMINANTS:
Explosives, Solvents

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA, RFI, ICM

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 200304

In March 1984, the explosive burn pads were converted to aboveground pans. In August 1985, soil was excavated and thermally treated to close the pad area. Also, a berm was placed around the explosive burn pans to provide flood protection. The RCRA Part B permit is in interim status. A Sludge Dewatering Station **(SWMU 48)** was never active.

A RFI was conducted in FY02. This investigation concluded that all contaminant concentrations in soil were much below the U.S. EPA Preliminary Remediation Goals. Furthermore, the concentrations of explosives, which decrease with depth in all cases, do not appear sufficient to produce the explosive concentrations found in the groundwater. RDX in excess of the U.S. EPA Health Advisory concentrations for drinking water was detected in all but one groundwater sample, HMX was well below its health advisory level. It was concluded that contamination of the ground water by explosives due to burning ground activity was not probable. Rather, an upgradient source was more likely (i.e., the explosives production area).

No further action was requested for the observed low-level soil contamination. The low-level groundwater contamination will be addressed under HSAAP-033 as part of the site-wide groundwater investigation, since it appears not to be directly related to burning ground activities.

BUILDING 8 EXPLOSIVES TESTING AREA - AOC I
HSAAP-16

SITE DESCRIPTION

This site is located in the Area B shop area just north of Building 8 (main lab). The site is less than one acre and began operation in 1943.

CS results indicate a release of lead and low-level concentration of explosives.

This site will be handled and funded with HSAAP-38 (similar to RFI as AOC I).

STATUS

RRSE RATING: Low

CONTAMINANTS:
Explosives, Metals

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199108

PONDS (SODIUM NITRATE) 3 & 4 - SWMUs 40, 41
HSAAP-17

SITE DESCRIPTION

This site is located in the south central part of Area B and is in the 200-yr flood plain. **Pond 3 (SWMU 40)** is 10 acres and was in operation between 1970-1987. **Pond 4 (SWMU 41)** is approximately 15 acres and was in operation between 1974-1994. The residue material was drained to the industrial wastewater treatment facility (IWTF) upon closure of the ponds. Due to the high nitrogen content, upsets at the IWTF resulted causing this method of removal to be discontinued. During 1994-1995, in accordance with a State negotiated schedule, the pond material was removed and the ponds were capped. The site has been vegetated. Groundwater is currently being monitored under a NPDES permit.

No further action is necessary. Sampling has been discontinued and site closed under Solid Waste Division.

STATUS

RRSE RATING: High

CONTAMINANTS:
Sodium Nitrate, Tar

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA, ICM

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199606

STP E OF MFG AREA - SWMU 89
HSAAP-19

SITE DESCRIPTION

The Industrial Wastewater Treatment Plant began operation in 1983. It is currently active and is, therefore, not eligible for ER,A funding.

The RFA recommended NFA.

This site is currently active, therefore, it is not eligible for ER,A funding.

STATUS

RRSE RATING: Low

CONTAMINANTS:
Solvents, Acids, Explosives

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199108

FLY ASH LANDFILL, AREA B, CLOSED - SWMUs 23, 28, AOC H
HSAAP-20

SITE DESCRIPTION

This area includes the following: Fly Ash Landfill Area, Closed (SWMU 23), Sedimentation ponds for the Flyash Landfill (SWMU 28) and Interchange Yard/Flyash Landfill (AOC H). In 2002 SWMU 28 and AOC H were placed in HSAAP-20 because of close proximity and NFA status.

Fly Ash Landfill Area, Closed (SWMU 23) is located in the south east of Area B adjacent to the lower end of Line 10. The site is 7 acres and was operated from 1977 to August 1984 when it was closed. Groundwater analyses have shown high levels of manganese and some metals in both upgradient and downgradient wells. No adverse trends have been observed. NFA was proposed in the CS Work Plan approved by TDEC.

The **Sedimentation ponds for the Flyash Landfill (SWMU-28)** are not eligible for ER,A funding.

STATUS

RRSE RATING: High

CONTAMINANT: Metals

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 200001

The **Interchange Yard/Flyash Landfill (AOC-H)** was listed in the A.T. Kearney RCRA Facility Assessment as requiring confirmatory sampling. Soil samples collected from the Interchange Yard/Flyash Landfill indicated no contamination present. NFA was approved by the State as a result of confirmatory sampling.

SWMU-23: No further action is necessary. This site is being monitored under the Solid Waste Program.

SWMU-28: NFA status.

Interchange Yard/Flyash Landfill (AOC H): NFA based on CS results.

AERATION POND AREA A - SWMUs 12, 13
HSAAP-21

SITE DESCRIPTION

This site consists of two ponds: the **Area A Spill Pond (SWMU 12)** and the **Area A Aeration Basin (SWMU 13)**.

This site is located just across Wilcox Drive to the west of Area A's main production area. The lagoon was originally constructed in 1975 as one clay-lined basin receiving wastewater from Bldg. 2 (Acetic Acid Concentration). In 1979, wastewater from Bldg. 6 (Anhydride Refining) and Bldg. 7 (Anhydride Mfg.) were directed to this lagoon. In 1983, the pond was divided to provide an equalization basin and spill pond. The lagoons are lined with at least two feet of clay and are 15 feet deep. NFA was proposed in the CS Work Plan approved by TDEC.

No further action is necessary.

STATUS

RRSE RATING: High

CONTAMINANTS: Acid, Industrial Wastewater, Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

COMPLETED IRP PHASE: RFA, CS

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199803

LANDFILL AREA A, COAL TAR - SWMUs 15, 102
HSAAP-22

SITE DESCRIPTION

This site consists of the following: Coal Tar Landfill #2 (SWMU 15) and the Former Penn-Dixie Sedimentation Pond (SWMU 102). In 2002 SWMU 102 was placed in HSAAP-22 because of its close proximity and NFA status.

Coal Tar Landfill #2 (SWMU 15) is located just across Wilcox Drive to the west of Area A's main production area. Coal Tar Landfill # 2, which was located west of Coal Tar Landfill #1 (SWMU-14), approximately 1/4 acre in size, was clean-closed in 1997. SWMU-14 was incorporated into HSAAP-03.

SWMU 102 is the **Former Penn-Dixie Sedimentation Pond** site. This SWMU is located northeast of the location where the interplant railroad crosses the South Fork of the Holston River. The site is located approximately 265 feet from the east bank of the South Fork of the Holston River. The SWMU comprised a small portion of the former Penn-Dixie pond that extended onto the HSAAP property and contained flyash and cinders. In 1997 the pond was filled and a 18-inch clay cap was constructed over the fill. This clay cap extended over SWMU 102. The results of the soil and groundwater investigation conducted at this unit in 1997 were reported in the CS Work Plan (1999). TDEC approved the site for NFA in February 2000.

No further action is necessary for both SWMU-15 and SWMU-102.

STATUS

RRSE RATING: High

CONTAMINANTS:
Metals, PAHs

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA, RFI, CMI(WP), CMI(C)

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199803

PESTICIDE DRAIN FIELD NEAR BLDG 148
SWMUs 77, 78, 86, 87, 88
HSAAP-25

SITE DESCRIPTION

The following SWMUs were included in this site: Pesticide Rinsate Pre-filter Tank (SWMU 77), Pesticide Rinsate Septic Tank (SWMU 78), Pesticide Drain Field (SWMU 86), Pesticide Washdown Area (SWMU 87), WWII Pesticide Equipment Washdown Area (SWMU 88). All SWMUs have been moved into HSAAP-26.

STATUS

RRSE RATING: High

CONTAMINANTS:
Organics (Pesticides & Herbicides)

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
RFA, CS

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199812

LEAKING UST B-22 - AOC E
HSAAP-28

SITE DESCRIPTION

This site is located in the southern part of Area B in the burning ground area within 200 feet of the Holston River. This is within the 100-yr flood plain. The site is less than one acre and was built in 1943. The contamination was discovered on 8 May 1991 during replacement of the UST (kerosene) with an aboveground tank. This site has an approved site-specific standard.

The UST was removed in May, 1991 (per approved August 2000 Work Plan).

No further action is necessary.

STATUS

RRSE RATING: Low

CONTAMINANT: POL

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA, CS, RFI, ICM

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199612

HEATING OIL LEAKING UST AT B-12, AREA A - AOC E HSAAP-34

SITE DESCRIPTION

An abandoned leaking heating oil tank and surrounding contaminated soil at Bldg. 12A was removed in 1992. Subsurface investigation was conducted in 1995. One GW well was installed, sampled, and no contamination levels of concern were detected in subsurface soil samples.

No further action. (per August 2000 RFI Work Plan)

STATUS

RRSE RATING: Low

CONTAMINANT: POL

MEDIA OF CONCERN: Groundwater

COMPLETED IRP PHASE: RFA, CS, ICM

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199604

ACTIVE COAL PILE SOUTH OF B-200, STM PLT - SWMUs 27, 56 HSAAP-36

SITE DESCRIPTION

This area includes both **SWMU 56 - Existing Coal Pile and SWMU 27 - Sedimentation Pond for Area B Coal Pile**. SWMU 27 was moved from HSAAP-08 in 2002 because of its close proximity and active status. Both SWMU areas are located south of Building 200 (Steam Plant) in Area B. The units consist of a coal pile that covers approximately 3.5 acres. The ground surface of the units slopes to the southwest. The south side of the units is bound by a 3 to 4 foot earthen berm. The west side of the units is bounded by the Coal Pile Sedimentation Pond. The units are located over an area once used to dispose of fly ash and coal tar.

These sites are active and are, therefore, not eligible for ER,A funding. A RFI will be conducted at HSAAP-01 (SWMU 24), which is located under this site.

STATUS

RRSE RATING: Medium

CONTAMINANT: PAHs

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199108

PAST SPILL SITES/LOADING SITES
HSAAP-39

SITE DESCRIPTION

All SWMUs and AOCs that were associated with this site have been either incorporated into other AEDBR sites or will be submitted to TDEC for no further action.

STATUS

RRSE RATING: High

CONTAMINANTS: N/A

MEDIA OF CONCERN: N/A

COMPLETED IRP PHASE: RFA

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 199108

SANDBLASTING/LOADING AREAS SWMUs 9, 10, 82, 93, 94, 95
HSAAP-40

SITE DESCRIPTION

This site consists of **SWMUs 9 (Area A Flyash Loading Area), 10 (Rail Car Loading Area in Area A), 82 (Area B Flyash Loading Area), 93 (Sandblasting Area 1), 94 (Sandblasting Area 2)**, and **95 (Sandblasting Area 3).**

Soil samples were collected from this site in 1997 and 2000. Data was reported in the CS Work Plan and the CS Report. TDEC approved No Further Action for the units in this site (February 2000 & June 2000).

No further action.

STATUS

RRSE RATING: Low

CONTAMINANT: Metals

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: RFA, RFI

CURRENT IRP PHASE: RC

FUTURE IRP PHASE: RC

RC DATE: 200012

2005 IAP

Holston AAP
Non-ER,A
Site Descriptions

CYCLOHEXANONE SPILL
HSAAP-104

SITE DESCRIPTION

This site is the location of a cyclohexanone drip from stainless steel piping between Buildings G-4 and G-5. The small drip was discovered on 4 October 2002. The area affected is a grassy area just beyond a drainage ditch near Building G-4. Because of the date the spill occurred, this site is not eligible for ER,A funding.

Upon notice of the leak, pumping of cyclohexanone through the pipeline immediately ceased and a five-gallon container was place under the leak to prevent any further material from discharging to the ground and to enable the installation to remove and replace the failed piping flange. TDEC was notified on 4 October 2002 and a site visit was made by the State on 7 October 2002.

STATUS

RRSE RATING: N/A

CONTAMINANTS: Cyclohexanone

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED PHASE: RA

CURRENT PHASE: LTM

FUTURE PHASE: LTM

An initial excavation involved approximately six inches of dirt around the discharge point including the drainage ditch. Following the initial excavation, two soil samples were taken on 31 October 2002 to identify contamination levels and to further determine spill parameters. Results of the sampling showed high contamination level of cyclohexanone. All runoff water collected at the spill site was sent directly to the on-site industrial wastewater treatment facility for subsequent treatment.

Additional excavation of approximately six feet in depth followed with two soil samples were taken on 7 January 2003 at the bottom of the excavated site. Satisfactory soil analysis determined no contamination at the bottom of the excavated site. Four more samples were taken on 12 February 2003 to determine a perimeter. The soil analysis identified further contamination along the roadside only. Subsequent excavation of the roadside area persisted with an additional two soil samples taken on 27 February 2003 to identify completion clean-up.

PROPOSED PLAN

All excavated soil, totaling 128 cubic yards after site clean-up completion, will be transported off-site for treatment. Two downgradient monitoring wells will be placed at the site, one upstream and the other downstream, to determine any residual contamination in groundwater. Based on successful removal of the contaminated soil from the site, HAAP will request TDEC approval to backfill the excavated area with clay and gravel.

PAST MILESTONES

1991-1992

A RFA/CMS was completed by an EPA contractor in August 1991, and confirmed by USATHAMA in May 1992. These were performed at no cost to the installation. These actions initiated the restoration program at HSAAP.

1994-1995

The USACE performed an Environmental Assessment (RFI) for a former UST site, Bldg. 22 (HSAAP-028). HSAAP does not have record of the total funds received by the USACE for Bldg. 22, nor the date when the USACE became involved in the Bldg. 22 effort.

1994

During September 26-30, 1994, the installation received funding for a Risk Assessment at Ponds 3 and 4, HSAAP-17. The pond material was removed and the ponds were capped. The site has been vegetated. Groundwater is currently being monitored under a NPDES permit.

On September 30 of 1994, the installation received funding for the design and installation of a remediation system for POL contamination at a former UST (Bldg. 105). An airsparge/vapor extraction system was installed in August of 1995.

During late FY94, the USACE received funding for a RFI at three Coal Tar Sites (WWII site at Area B, and SWMU 14 and 15 at Area A). HSAAP does not have record of funding received by the USACE.

1995

On March 31, 1995, the installation received funding for groundwater monitoring at ER,A sites. Also, funding was received for two removal efforts: removal of Pond 3, and coal tar removal near Bldg. 8A (SWMU 96) and 10A, as listed in AEDB-R.

On July 7, 1995, the installation received to develop a closure plan, permit application and post-closure care plan for the former solvent burn tank at Area B. The closure plan was prepared, approved and sampling conducted with close State guidance and in accordance with the closure plan.

On September 26, 1995, the installation received to prepare a request for a site-specific standard at Bldg. 22 (AOC E).

Also on September 26, 1995, the installation received for an interim removal action and a Corrective Action Plan for the Area A coal tar sites HSAAP-22. Coal tar has been removed from the banks of the Holston River. The Corrective Action Plan is being prepared based on the USACE prepared RFI (draft report obtained in June 1996).

During FY95, the USACE received S&A funds for two RFIs in progress (Area A Coal Tar Sites and World War II Coal Tar Site).

1996

On July 3, 1996, the installation received to continue the operation and maintenance of the Bldg. 105 solvent-vapor extraction system, SWMU 51/52 / HSAAP-29 subsequent to a removal action.

During FY96, the USACE received approximately to design a removal action for coal tar at SWMU 15.1996 Removal action performed subsequent to design. The USACE also received S&A funds for two RFIs (Area A Coal Tar Sites and World War II Coal Tar Site) in progress during FY96.

Past Milestones continued next page

Schedule

PAST MILESTONES, continued

1997

During FY97, completed Survey Phase RCRA Facility Assessment (USACHPPM Project # 38-EH-5035-96).
May-September 1997 - Completed Sampling Visit Phase, RCRA Facility Assessment, and Release Assessment (USACHPPM Project # 38-EH-5694-97).

1999

CS Work Plan - Nov 1999

2000

CS Report/RFI Work Plan - April 2000

RFI Work Plan - Aug 2000

RFI Sampling & Analysis plan - Aug 2000

2001

RFI of Coal Tar Contamination in Area A associated with SWMU-4, SWMU-14 and SWMU-103.

Additional confirmatory sampling report (HSAAP-08, HSAAP-23, HSAAP-29, and HSAAP-38).

Initiation of RFI of site-wide groundwater.

2001- RFI of coal tar contamination of Area A near SWMU 4, 14, 103 and interim measures Work Plan.

2002

Additional Confirmatory Sampling - Mar 2002

RFI for Site-wide GW - May 2002

RFI SWMU 96 Prod Gas Bldg , Coal Tar Liquor - Aug 2002

2003

RFI for Site-wide GW - Aug 2003

Removal actions - three coal tar cleanups (HSAAP-03 (2), HSAAP-37) - Aug 2003

RFI for Pesticide Site (HSAAP-26) - Sept 2003

RFI for Producer Gas Site (HSAAP-37) - Oct 2003

Drainage Ditch Study (HSAAP-02) - Nov 2003

2004

Demolition of Building 10A (HSAAP-37)

Removal of Pesticide Tanks (HSAAP-26)

PROJECTED MILESTONES

2005 to Completion

- The Performance Management Plan is under development

NO FURTHER ACTION SITES

The following sites currently require no further action under the ER,A program:

HSAAP-04 ..... Active Sanitary Landfill
HSAAP-11 ..... Nitric Acid Spill Pond
HSAAP-12 ..... Tar Burial Pit Area B
HSAAP-15 ..... Burning Grnd South of Mfg Area
HSAAP-16 ..... Building 8 Explosives Testing Area
HSAAP-17 ..... Ponds (Sodium Nitrate) 3 & 4
HSAAP-19 ..... STP E of Mfg Area
HSAAP-20 ..... Fly Ash Landfill, Area B, Closed
HSAAP-21 ..... Aeration Pond Area A
HSAAP-22 ..... Landfill Area A, Coal Tar
HSAAP-25 ..... Pesticide Drain Field Near Bldg 148
HSAAP-28 ..... Leaking UST B-22
HSAAP-34 ..... Heating Oil Leaking UST at B-12, Area A
HSAAP-36 ..... Active Coal Pile South of B-200, Stm Plt
HSAAP-39 ..... Past Spill Sites/Loading Sites
HSAAP-40 ..... Sandblasting/Loading Sites

Schedule

Holston Army Ammunition Plant Installation Action Plan Schedule

(Based on Cost-to-Complete current funding constraints)

CURRENT PHASE | FUTURE PHASE

AEDB-R #	SITE NAME	RRSE	PHASE	FY05	FY06	FY07	FY08	FY09	FY10	FY11+
HSAAP-39	PBC at Holston	NE	CMI(C)							
			LTM							

Remediation Activities

COMPLETED REM/IRA/RA:

- HSAAP-03 - Removal of coal tar (funded in FY02)
- HSAAP-17 - IM / demolition of Ponds 3 & 4 - 1996
- HSAAP-28 - Replace UST with AST, Request and obtain Site-Specific Standard at Bldg. 22 - 1991-1996
- HSAAP-29 - UST Removal - 1994
- HSAAP-29 - IM sparge/vapor extraction - 1995
- HSAAP-33 - Post-Closure Care Plan for Former Solvent Burn tank site - 1998
- HSAAP-34 - REM Heating Oil tank and soil - 1993
- HSAAP-37 - IM of coal tar liquor-contaminated soil during removal of ASTs (SWMU-96) - 1996

CURRENT REM/IRA/RA:

- HSAAP-26 - Pesticide Areas - RA - Soil excavation and on-site thermal treatment
- HSAAP-29 - Leaking UST - RA - In situ Remediation
- HSAAP-37 - Gas Production - RA - Soil excavation and disposal; bioremediation for GW

FUTURE REM/IRA/RA:

- The Performance Management Plan is under development

RESTORATION ADVISORY BOARD (RAB) STATUS

A Restoration Advisory Board has been established and the first meeting was held on 18 October 1999. There are approximately 15-25 attendees with representatives from the Army, State, and local citizens.

The RAB meets on an as-needed basis. Past activities have included installation tours, training and corrective action discussions, video presentation of one of the SWMU sites and an update from USACHPPM. A community relations plan was prepared by USACHPPM in FY03.

In the summer of 2002, HSAAP received significant community comments on the Finding of No Significant Impact announcement concerning the Transit Mix Project. Air pollution (particulates) were of primary concern. Waste water and storm water runoff were also issues.

RAB members attended the Installation Action Plan Workshops in December 1999, September 2000, August 2001, April 2002, November 2002, and September 2003.